IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) ~~I/Q-Demodulator~~ An I/Q demodulator comprising:

~~a~~ an n-port structure ~~(1)~~ being supplied with a first RF signal ~~(2)~~ to be demodulated at a first input ~~(3)~~ and with a second ~~RF-signal (4)~~ RF signal to be demodulated at a second input ~~(5), and~~ , said n-port structure outputting n-2 output signals ~~(6) to~~ of a plurality of power sensors ~~(7)~~, with n being 4, 5 or 6, ~~characterized by~~ and

a multiplexing means ~~(8)~~ for multiplexing low-pass-filtered output signals ~~(9)~~ of the plurality of power sensors ~~(7)~~.

2. (Currently Amended) ~~I/Q- Demodulator~~ The I/Q demodulator according to claim 1,

~~characterized in that it~~ wherein said I/Q demodulator further comprises a single A/D converter ~~(10) being~~ that is supplied with an analog signal ~~(11)~~ originating from the multiplexing means ~~(8)~~ and outputting a digitally converted signal ~~(12)~~ to a digital processing unit ~~(19)~~.

3. (Currently Amended) ~~I/Q- Demodulator~~ The I/Q demodulator according to claim 2,

~~characterized in that~~ wherein the A/D converter ~~(10')~~ has an adaptive sampling rate.

4. (Currently Amended) ~~I/Q- Demodulator~~ The I/Q demodulator according to claim 2,

~~characterized in that~~ wherein the digital processing unit ~~(19)~~ comprises an adaptive baseband filtering unit ~~(23)~~.

5. (Currently Amended) ~~I/Q-Demodulator~~ The I/Q demodulator according to claim 1,

~~characterized in that~~ wherein the output ~~signal~~ signals of the plurality of power sensors ~~(13) can be~~ are selectively passed through different low-pass-filters ~~(14)~~ having different cut-off-frequencies.

6. (Currently Amended) ~~I/Q-Demodulator~~ The I/Q demodulator according to ~~claim 1~~ claim 5,

~~characterized by~~ wherein said I/Q demodulator further comprises switches ~~(15)~~ for ~~the selection of~~ selecting the different low-pass-filters ~~(14)~~.

7. (Currently Amended) ~~I/Q-Demodulator~~ The I/Q demodulator according to claim 1,

~~characterized in that~~ wherein the n-port structure is a five-port-junction ~~(1)~~.

8. (Currently Amended) ~~I/Q-Demodulator~~ The I/Q demodulator according to claim 1,

~~characterized in that~~ wherein the n-port structure is a four-port-junction ~~(16)~~ and the demodulator is a (M)QAM or a (M)PSK demodulator.

9. (Currently Amended) ~~I/Q-Demodulator~~ The I/Q demodulator according to claim 1,

~~characterized in that~~ wherein the multiplexing means is a DC-switch ~~(8)~~ with a switching time of $\frac{1}{n-2}$ times ~~the~~ a symbol duration.

10. (Currently Amended) ~~I/Q-Demodulator~~ The I/Q demodulator according to claim 1,

~~characterized in that~~ wherein before or after the multiplexing means ~~(8)~~ at least one DC-amplifier ~~(17)~~ is provided.

11. (Currently Amended) ~~I/Q-Demodulator~~ The I/Q demodulator according to claim 1,

~~characterized by~~ further comprising a low-pass-filter ~~(20)~~ following the multiplexing means ~~(8) and~~ , said low-pass filter having a cut-off-frequency of $\frac{n-2}{2} \cdot B$, whereby the output ~~signal~~ signals of the plurality of power ~~sensor (13) is a~~ sensors are low-pass-filtered with a cut-off-frequency of $\frac{B}{2}$ ~~and~~ , ~~where~~ B is ~~the~~ a maximum bandwidth of the RF signal ~~(2)~~ to be demodulated.

12. (Currently Amended) ~~I/Q-Demodulator~~ The I/Q demodulator according to claim 1,

~~characterized in that~~ wherein the n-port ~~(1, 16)~~ structure, the ~~power-sensors (7)~~ plurality of power sensors and said multiplexing means ~~(8)~~ are integrated on ~~one~~ a single chip ~~(18)~~.

13. (Currently Amended) ~~Software~~ A software radio device

~~characterized in that it~~ wherein said radio device comprises an I/Q-demodulator ~~(21)~~ according to claim 1.

14. (Currently Amended) ~~Method~~ A method for I/Q-demodulation, said method comprising the ~~following~~ steps of:

[[-]]inputting a ~~RF-signal (2)~~ first RF signal to be demodulated in ~~a~~ an n-port structure ~~(1)~~,

[[-]]inputting a second ~~RF-signal (4)~~ RF signal in ~~a~~ an n-port structure ~~(1)~~,

[[-]]detecting ~~(7)~~ the power ~~on~~ of n-2 output signals ~~(6)~~ of a plurality of output sensors of the n-port structure ~~(1)~~, n being 4, 5 or 6,

[[-]]low-pass-filtering ~~(14)~~ the detected power signals ~~(13)~~, and

[[-]]multiplexing the low-pass-filtered power signals ~~(9)~~.

15. (Currently Amended) ~~Method~~ The method according to claim 14,

~~characterized by~~ said method further comprising the step of:

supplying a single A/D converter ~~(10)~~ with the multiplexed power signals and outputting a digitally converted signal ~~(12)~~ to a digital processing unit ~~(19)~~.

16. (Currently Amended) ~~Method~~ The method according to claim 15,

~~characterized by~~ said method further comprising the step of:

adapting ~~the~~ a sampling rate of the A/D converter ~~(10)~~ depending on ~~the~~ a bandwidth of the RF signal ~~(2)~~ to be demodulated.

17. (Currently Amended) ~~Method~~ The method according to claim 14,

~~characterized in that~~ wherein the power signals ~~(13) can be~~ are selectively filtered ~~(14)~~ with different cut-off-frequencies.

18. (Currently Amended) ~~Method~~ The method according to claim 14, ~~characterized in that~~ wherein the step of multiplexing is implemented by a DC-switch ~~(8)~~ with a switching time $\frac{1}{n-2}$ of ~~the~~ a symbol duration.

19. (Currently Amended) ~~Method~~ The method according to claim 14, ~~characterized in that~~ wherein the multiplexed power signals are low-pass-filtered ~~(20)~~ with a cut-off-frequency of $\frac{n-2}{2} \cdot B$, whereby ~~the~~ non-multiplexed power signals are low-pass-filtered with ~~the~~ a cut-off-frequency of $\frac{B}{2}$, where B is ~~the~~ a maximum bandwidth of the RF signal ~~(2)~~ to be demodulated.